Economics and Sociology
Occasional Paper No. 2167

THE MARKETING AND FINANCING OF AGRICULTURE AND AGRIBUSINESSES IN MADAGASCAR

by

Arnoldo R. Camacho

October 1994

Case Study prepared for the Bureau of Africa, Office of Sustainable Development, Division of Productive Sector Growth and the Environment
Agency for International Development, Washington, D.C.
Under the Project "Agribusiness Development in Sub-Saharan Africa,"
Contract No. DHR-5450-A-00-9084-00

Rural Finance Program
Department of Agricultural Economics
The Ohio State University
2120 Fyffe Road
Columbus, Ohio 43210-1099

Table of Contents

List of Tables

THE MARKETING AND FINANCING OF AGRICULTURE AND AGRIBUSINESSES IN MADAGASCAR

by

Arnoldo R. Camacho[1]

I. Introduction

This study presents an overview of the agricultural sector in Madagascar in order to explore the potential for the country's growth that derives from improved production, marketing and processing of agricultural production, and in particular, from the development of the fruits and vegetables subsector as part of non-traditional exports. The marketing arrangements, the terms and conditions of the formal and informal financial contracts used in the importation and acquisition of special inputs, and the production, marketing and exportation of key outputs are discussed. Special attention is given to the activities and interventions of agribusinesses and other agricultural sector agents (middlemen, processors, and traders) that have led to the integration, diversification, and modernization of agricultural production.[2] The issues and constraints that impede the full exploitation of the sector's potential are discussed, and policy recommendations are presented.

The paper is organized into six sections. Section I presents background information about the country's economic performance, recent policy reforms, the characteristics of the financial sector, and the country's potential for growth. Section II presents the methodological approach and data used to conduct the analysis for this study. Section III describes the characteristics of the agricultural sector, identifying the country's agricultural zones, the composition of agricultural output, and the typical agricultural producers and other important agents (agribusinesses, processors, traders and middlemen) found in the agricultural sector. Section IV depicts the most common marketing systems that are used in the country and outlines the conditions leading to the adoption of a particular system. Section V attempts to assess the financial needs of producers and other agricultural sector agents, looks at the role played by

---

[1] The author is an Associate Professor of Economics at INCAE (Central American Institute of Business and Economics) in Costa Rica, and a consultant under the FIRM Cooperative Agreement between The Ohio State University and USAID/Washington. The author wishes to acknowledge with appreciation the support, contributions and comments of the staff of USAID/Madagascar, and especially John Thomas, CAP project director, James Brown and the Chemonics CAP Design Team, and the local producers and marketing agents interviewed that made possible this study. The normal disclaimers apply.

[2] The supply of key inputs, advances on crop purchases, and the innovative marketing of agricultural products are among these interventions.

marketing arrangements in determining access to finance, and presents the terms and conditions under which credit is obtained. Finally, Section VI looks at the issues and constraints that prevent the development of agribusiness and agricultural activities.

II. Background

A. Recent Economic Developments

Madagascar, located in the Indian Ocean, is the fourth largest island in the world.[3] The country remains an agricultural-based low-income economy, with income per capita estimated at US $230 in 1991. Its population, estimated at over 13 million in 1991, remains widely dispersed in rural areas and practices agriculture frequently at subsistence levels. Since independence in 1960, the country's economic performance went from a period of modest growth until 1970, to stagnation from 1970 to 1980, and a to sharp deterioration between 1980 and 1982.

In 1983, after ten years of centralized- socialist policies, the country carried out with IMF support a two year stabilization program centered on demand management, which halted the economic decline. However, exports still continued to decline in nominal terms, as can be observed in Tables 1 and 2.[4] In 1985 the government launched an adjustment program with the support of IDA-financed industrial and agricultural sector adjustment credits, which lead to a broader reform agenda in 1987. The country signed an IMF Structural Adjustment Facility in 1987, to cover the 1987-1990 period, and later an IMF Enhanced Structural Adjustment Facility and an IDA's Public Sector Adjustment Credit to cover the 1988-1991 period.

These programs, which included reforms in the trade, financial, and fiscal sectors, and within public enterprises, set in place a market-led economic system. Positive results were soon observed, as the country's GDP averaged a 3.5 percent annual rate of growth between 1986 and 1990, and fiscal imbalances were reduced from 4.1 to 1 percent of GDP in spite of the high capital expenditures associated with the country's public investment program. However, the balance of payments situation continued to deteriorate, mainly as a result of the weakening of the country's traditional export markets, even though non-traditional exports and tourism flourished.[5]

---

[3] The country's area surpasses 587,000 square kilometers.

[4] World Bank tables present extensive data on this issue.

[5] A detailed analysis of the country's economic performance is presented in "Madagascar, Country Program Strategic Plan FY 1993-1998," USAID/Madagascar, 1992.

Table 1. Madagascar: GDP Indicators, Exports and Imports, 1980-1992.

Year	GDP Per Capita 1987 US$	GDP Annual Rate of Growth	Exports (millions of dollars)	Imports
1980	350	0.8	386.5	676.5
1981	300	-9.8	324.4	473.0
1982	290	-1.9	329.5	439.0
1983	290	0.9	310.3	411.5
1984	280	1.7	339.9	412.2
1985	280	1.1	286.7	465.1
1986	280	2.0	316.6	373.6
1987	260	1.2	331.1	302.1
1988	260	3.4	273.7	363.9
1989	260	4.1	304.7	450.0
1990	260	3.0	334.6	480.0
1991	230	-6.3	320.0	401.0
1992	230	1.0	NA	NA

Source: Prepared by the author using data from The World Bank Tables.

Table 2. Madagascar: Price Indicators, 1981-1991. (Annual variations in percent)

Year	GDP Deflator	Consumer Price Index	Exchange Rate
1981	26.8	30.5	-12.1
1982	28.7	31.8	-8.7
1983	21.5	19.3	-6.9
1984	10.3	9.9	-3.8
1985	10.4	10.6	14.6
1986	14.2	14.5	-11.1
1987	23.0	15.0	23.6
1988	21.2	26.9	15.0
1989	11.9	9.0	15.0
1990	11.5	11.8	1.2
1991	12.7	8.5	4.6

Source: Prepared by the author using data from The World Bank Tables.

The process of steady growth was halted in the country when widespread political disturbances and strikes derailed the adjustment effort during the second half of 1991. These events paralyzed public administration and severely disrupted economic activity. Output fell an estimated 6.3 percent in 1991, fiscal imbalances widened and the reserves of the Central Bank were depleted which further deteriorated the external position of the country. Although growth resumed in 1992, the growth in real GDP still reflects the repercussions of these political events, as the annual rate of economic growth for 1992 barely attained 1 percent, and is estimated at only 1.4 percent for 1993. More important, perhaps, is the fact that the financing of the fiscal deficit and the depletion of the Central Bank reserves have led to a restrictive monetary policy and to tighter controls on foreign exchange, factors that have reduced the availability of credit and limited the supply of key imported production inputs.[6]

B. The Malagasy Financial System

The financial sector reforms conducted in Madagascar in the late 1980s made the country a pioneer in Africa and the Indian Ocean in shifting from direct to indirect instruments of monetary control.[7] In fact, after a period of nationalization and heavy intervention, the portfolios of three state-owned banks were restructured, two of them were privatized, and a private bank with majority foreign capital and a branch of a foreign bank were authorized to operate in 1991. The Central Bank also conducted a progressive liberalization of interest rates, while the system of direct quantitative restrictions on credit was dismantled and replaced by indirect controls to encourage further competition in the financial sector.

Financial deepening and financial progress,[8] however, still proceed at a slow pace, as the banking system is emerging from technical insolvency, offers only a limited range of financial services, lacks regional coverage and still faces significant constraints that derive from the tight monetary policies, fiscal imbalances and weak external position of the country. In addition, commercial banks continue to operate as specialized institutions. The only remaining state-owned bank, the BTM, (Bankin'ny Tantsaha Mpamokatra or The Bank of the Small Agricultural Producers), is the largest institution in the country in terms of volume of services, infrastructure, and regional presence, but continues to specialize in agricultural lending, utilizing only a limited proportion of its portfolio to finance other commercial banking activities. The BFV (Banky Fampandrosoana ny Varotra or Bank of Commerce), which is partly owned by the state, and the BNI (Bankin'ny Indostria or Bank of Industry) a fully privatized former state-

---

[6] More detailed data are presented in Trends in Developing Economies 1992, published by the World Bank, Washington D.C.

[7] A full description of these reforms can be found in Madagascar: Financial Policies for Diversified Growth, A World Bank Country Study, World Bank, Washington D.C., 1993.

[8] Financial deepening is associated with the increase in the monetization and importance of financial intermediation, while financial progress is associated with the reduction of financial intermediation margins.

owned bank associated with the Credit Lyonnais, continue to specialize in their specific sector activities. The newly opened Bank Malagasy of the Indian Ocean (BMOI), owned by the Bank National de Paris, and the Union Commercial Bank (UCB), a branch of the Mauritius Commercial Bank, focus primarily on deposit mobilization and short term credit in urban areas, and on the provision of support services to the trade sector via their foreign correspondent banks.

The interest rates charged on loans by financial intermediaries tend to be positive in real terms as a result of financial sector reforms, which follow the principal recommendations of development finance. The term structure of interest rates, however, is not consistent among financial institutions, as it varies between the BTM and other participating financial intermediaries. Among the latter, short-term interest rates range between 22 to 24 percent, while medium-term rates range between 16 to 18 percent, reflecting the efforts of private banks to exploit the highly profitable short-term internal commerce activities. In contrast, these rates range between 17.5 to 18.5 percent, and between 20 and 22 percent for short-term and medium-term loans, respectively, at the BTM, while agricultural production is financed at rates that range between 12.5 and 14.5 percent.

The BTM, which remains the sole source of finance for agricultural production, justifies the cross-subsidization of the rates charged to the agricultural sector as the developmental function of the bank. The services offered tend to be limited and similar among all institutions, while interest rates range between 6 and 8.5 percent on savings, and up to 13 percent on term deposits. Competition for savings mobilization is limited in the system, as banks are highly liquid at the present time, and therefore do not actively compete in deposit rates.

C. The Country's Potential for Economic Growth

Agriculture already contributes to about 30 percent of total gross domestic product (GDP) and 80 to 90 percent of export earnings. It is the sector that offers the greatest potential to stimulate economic growth. The country's varied topography, reliable rainfall, and the substantial historical investment in water control infrastructure offer substantial opportunities to increase the production of traditional crops and to diversify production towards other tropical and temperate crops.[9] Several agribusiness market-led efforts and support interventions are attempting to remove distortions and externalities that prevent the country from meeting its real growth potential.

The country's strategy for and proposed interventions in the agricultural sector currently focus on strengthening internal markets, improving the country's infrastructure, and promoting

---

[9] USAID/Madagascar, "Madagascar, Commercial Agricultural Production, Project Identification Document," 1992.

the development of non-traditional export markets.[10] The proposed interventions recognize that: (1) internal trade remains highly inefficient and less active than external trade as a result of the wide dispersion of the population and the country's weak communications infrastructure; (2) the productivity of the agricultural sector and rural incomes are low as a result of the reliance on traditional production technologies and subsistence operations of most agricultural households; (3) most Malagasy households are food-insecure and malnourished; and (4) the country's traditional coffee and vanilla export markets have weakened while access and quality restrictions are being raised in the international markets for both traditional and non-traditional export products.

III. Methodology

A. Scope and Approach

This study employs the approach suggested by the New Institutional Economics (NIE) and Transaction Cost Economics (TCE) literature to examine the marketing arrangements and contracts that facilitate the coordination among diverse types of agents, and shape the production-to-consumption flows in developing economies.[11] This literature identifies the asset specificity of production and the uncertainty surrounding purchase contracts as the factors that explain the relationships that exist between agribusinesses and other operators and producers.

Asset specificity is said to be higher the longer the production cycle, the larger the scope economies that can be exploited by operators by conducting processing and post harvest operations, and the greater the degree of specialization, technical knowledge, and quality of output required from the productive process. Uncertainty about production and marketing relationships is associated with the degree of product perishability, the specificity/quality of raw material required, and the degree of specificity of harvest and crop deliveries. The higher the level of asset specificity and uncertainty, the more likely the arrangements between economic agents will move from spot market operations towards formal contracts and, eventually, vertical integration. The type of marketing arrangement developed is determined by asset specificity and uncertainty. These arrangements in turn determine access to and the terms and conditions of finance provided to specific farmers producing specific crops.

---

[10] These interventions are at the core of USAID/Madagascar projects: Commercialization of Agricultural Production (CAP), Market Infrastructure Expansion (MIX), and Madagascar Export Liberalization Support (MAELSP).

[11] Further references to the Transaction Cost Economics can be found in Steven M, Jaffee, "How Private Enterprises Organized Agricultural Markets in Kenya," WPS No. 823, World Bank, Washington, D.C., 1993.

B. Data Collection

Data for this study were obtained through interviews with representatives of producers and of producer associations in the Antananarivo and Fianarantsoa regions: two suppliers of inputs (AGRICO and AFAFI); four traders and processors (MARBOUR, TYKO, SMPL, KOBAMA); three exporters of agricultural products (LECOFRUIT, Mr.BLUE and SEAD); and five financial institution managers (two in Antananarivo and three in Fianarantsoa).

The regions of Antananarivo and the high potential zone of Fianarantsoa were chosen to conduct the interviews for several reasons: (1) they offer good potential for the development of non-traditional and/or off-season crops, such as wheat, fruits and vegetables, and livestock among large, medium and small farmers, as opposed to the coast lands where extensive monoculture of traditional export products is conducted all year long; (2) the population represents the typical Malagasy agricultural producers who operate their ancestral land during the region's traditional harvest season, and migrate to work for wages as collectors of extensive crops in other regions during the remainder of the year; (3) the diversity of products and the resulting opportunities for increased internal trade offer opportunities to reduce the country's fragmentation and to increase the monetization and revenues of agricultural producers; and (4) a self-financed, well organized group of non-traditional domestic exporters of fruits and vegetables operate in these regions.[12] The characteristics of these regions allow us to derive lessons from and identify the needs and constraints faced by innovative agricultural sector operators.

IV. The Agricultural Sector

A. Agricultural Zones and Land Use

The country has at least six different agricultural zones: (1) the Central Plateau in the highlands where rice, fruit and livestock are produced; (2) the Western Highlands, where extensive farming and dry-land cropping are found; (3) the East where forest products, export crops and fishing predominate; (4) the West Coast where extensive farming, industrial products (sugarcane and corn), as well as fishing are exploited; (5) the Far South, where vegetables (pois de cap, beans), short cycle food crops (corn, sweet, potatoes and sorghum) are found; and (6) the North, where rice, industrial products, and export products (coffee, cocoa, vanilla and cloves) are predominant.

The land destined to agricultural production accounts for less than 5 percent of the country's territory, as can be observed in Table 3. The limited use of the land reflects the comparably large area of the country in comparison to its limited population.[13] Forest and

---

[12] More detailed information is presented by Zeller.

[13] The country's population density is about two inhabitants per square kilometer.

woodlands, which used to cover a significant proportion of the country, have experienced a rapid depletion rate over time, reflecting the significant deterioration of the country's natural resource endowment. The abundance of land has also favored the development of livestock activities in the country, albeit at the expense of forest and woodlands. About 60 percent of the territory is currently used as pasture for livestock. The percentage of irrigated land, in contrast, is rapidly increasing and has come to represent about 30 percent of all arable land.[14]

Clearly, Madagascar's potential for growth resides in the agricultural sector. It can exploit its opportunities in the short run by expanding the area of production and by encouraging the shift from traditional to modern production practices. Higher production yields, increased integration of producers into local and regional markets in order to diversify production and increase marketable surpluses, and improved quality of output to meet international standards are necessary to render any effort successful. Attention needs to be given to the rational use of natural resources to halt their rapid pace of deterioration. Adequate resource management may guarantee the possibility of sustaining the country's growth in the long run.

Table 3. Madagascar: Land Use and Agricultural Labor, 1975-1990. (by use in 1000 Km, and as % of total labor)

Classification	1975	1980	1985	1990
Total area	587	587	587	587
Land area	581	581	581	581
Arable and permanent crops	28	30	30	31
Arable land	23	25	25	26
Permanent crops	5	5	5	5
Permanent pasture	340	340	340	340
Forest and woodlands	177	170	163	155
Other land	36	41	48	55
Irrigated land	5	6	8	9
Labor in agricultural sector (as % of total labor)	82.4	80.9	78.9	76.6

Source: Prepared by the author using data from the FAO Production Statistics Year Books.

[14] Irrigation has been a traditional practice among rice producing Malagasy farmers.

B. The Importance of Agriculture

a. Agricultural output and contribution to GDP

The agricultural sector accounts for 30 percent of the country's GDP, while manufacturing and services account for the remaining 20 and 50 percent, respectively. Agriculture has been the only sector that has experienced small but positive rates of growth in recent years As can be seen in Table 4, cereals, mainly paddy, roots and tubers, mainly cassava, and sugar cane destined for local consumption account for approximately 87 percent of total agricultural production.

Table 4. Madagascar: Composition of Agricultural Output, 1979-1992. (by type of product in percent)

Crop	1979	1990	1991	1992
Cereals	31.5	29.0	28.4	29.8
of which rice paddy	94.4	93.9	94.1	93.6
Pulses	0.8	0.5	0.5	0.5
of which dry beans	84.9	77.1	80.4	78.7
Roots and tubers	32.7	35.4	36.1	35.7
of which cassava	72.4	72.8	72.8	74.0
Sugar cane	20.5	22.5	22.2	21.9
Vegetables	4.1	3.7	3.8	3.4
of which green beans	38.2	37.3	44.8	43.6
Carrots	1.4	1.5	1.5	1.7
Petit pois	0.0	0.3	0.3	0.3
Cucumbers	0.4	0.3	0.3	0.3
Fruits	10.4	8.8	8.9	8.6
of which bananas	38.1	28.0	27.9	29.2
Coffee	11.4	10.8	10.9	11.6
Other	47.3	57.3	57.4	55.4

Source: Prepared by the author using data from the FAO Production Statistics Year Books.

Fruits and vegetables account for only 12 percent of output. Bananas are traditional exports, while green beans are used for both domestic consumption and exports. Livestock products, as shown in Table 5, are mainly composed of beef, veal, and fresh milk which are products destined solely for the domestic market.

Table 5. **Madagascar: Livestock Production, 1979-1992.** (by type of product in percentages)

Type	1979-19	1990	1991	1992
Beef and Veal	22.2	22.1	22.1	22.0
Fresh Milk	74.6	73.6	73.5	73.5
Eggs	2.7	3.7	3.7	3.9
Honey	0.5	0.6	0.6	0.6
Total	100	100	100	100

Source: Prepared by the author using data from the FAO Production Statistics Year Books.

b. Contribution to exports

The agricultural sector used to provide 80 percent of the country's export earnings, as can be observed in Table 6. Most of these earnings came from the exports of coffee and vanilla, which accounted for more than 90 percent of the total value of agricultural exports. This percentage has continually declined since 1986 because of the significant deterioration in the country's terms of trade resulting from the decline in the prices of traditional exports, as observed in Table 7. Although Madagascar used to export beef to the European Economic Community, these exports are nonexistent at the present time because the country does not meet the necessary fitosanitary standards.

Table 6. **Madagascar: Total and Agricultural Exports, 1986-1991.** (percentage distribution)

Classification	1986	1989	1990	1991
Total	100	100	100	100
Agricultural Products	78.9	65.2	54.5	47.4
Primary	74.1	61.7	49.7	42.8
Cereals	0.0	0.9	1.6	1.3
Coffee and Spices	72.6	49.7	39.3	34.3
Fruits and Vegetables	1.3	2.5	2.3	1.6
Sugar and Honey	0.3	7.9	5.5	4.6
Live Animals	0.0	0.3	1.0	0.3

Source: Prepared by the author using data from the FAO Production Statistics Year Books.

Table 7. **Madagascar: Indices of Agricultural Trade, 1980-1991.** (1979-81 = 100)

Year	Value	Volume	Price
1980	120.9	108.6	112.2
1981	75.9	83.9	91.1
1982	72.8	80.1	91.6
1983	89.4	93.3	96.5
1984	97.0	103.0	94.9
1985	68.9	66.6	104.2
1986	89.4	69.9	129.0
1987	104.6	122.1	86.3
1988	64.9	98.2	66.6
1989	70.2	158.1	44.7
1990	58.9	146.9	40.4
1991	48.5	117.4	41.6

Source: Prepared by the author using data from the FAO Production Statistics Year Books.

c. The fruits and vegetables subsector

Excluding bananas and coffee, fruits and vegetables account for 8 percent of total agricultural output, but for less than 2 percent of total exports. Most experts envisage a great potential for the development of non-traditional exports in the country. The highlands offer opportunities for the profitable production of a wide variety of fruits, vegetables, and tubers, while the lowlands offer a great potential for the production of tropical fruits.[15] These activities remain underdeveloped in the country, however, because the production technology is rudimentary, yields are low, and output does not meet export standards. Moreover, most of the output is retained for household consumption, as producers lack transportation, marketing arrangements with traders and processors exist for only a few crops, and the prices paid by middlemen and independent collectors are extremely low.

[15] Apples, peaches, grapes, litches, pineapple, bananas, green beans, gherkins, sweet potatoes, etc., are products that have access to the European Economic Community and could be developed as non-traditional exports.

C. Participants in the Agricultural Markets

a. Agricultural producers

According to Zeller, the predominant profiles observed among Malagasy farmers tend to reflect the characteristics of each productive zone: (1) rice farmers are typical of the highlands, most of which operate a small area (less than 1 ha.), lack access to imported inputs and technical assistance services, and for which the lack of a permanent market limits the development of secondary crops (off-season); (2) cattle herders are dominant in the South, operating well defined farms (on average 15 has.), holding communal pasture land but working individual plots; (3) western farmers rely on slash and burn agriculture for corn, manioc and beans for subsistence, cultivate rice fields and herd cattle as cash-earning activities; (4) western fishermen extract sea resources from coastal lagoons and river mouths and some get involved in transportation activities; (5) plantation workers are found in the east and south-east, relying on rice, bread fruit and bananas for subsistence, and on coffee, oranges, and sugarcane as cash crops; and (6) paid temporary collectors and small farmers are found in cotton areas. A significant proportion of small producers are not integrated into the market economy, as they operate at subsistence levels, and have limited access to regional roads and local markets.

b. Other agricultural sector agents

The conditions of operation of agricultural markets, which have been highly affected by distortions, imperfections and externalities, have led to the emergence of a wide diversity of agricultural agents in Madagascar: (1) a large number of independent collectors that exploit the potential rents made possible by the lack of information, weak infrastructure, and high dispersion of rural households; (2) suppliers of inputs who are also producers and/or processors and/or traders of products, both to expand their business and to diversify their lines of economic activity; (3) traders/processors and agribusinesses that have been forced to undertake the transfer of technology, the supply of inputs, and the collection of products in order to maintain the profitability of their businesses by removing externalities, imperfections, and obstacles; and (4) industrial self-financed groups or individuals that have identified highly profitable export-oriented agricultural activities, and have vertically integrated production and marketing to guarantee the quality of their products and minimize risks.

V. Marketing and Contracts in the Agricultural Sector

A. The Marketing of Agricultural Production

Up to 1985 the organization of production in the agricultural sector reflected the objectives of on-going socialist policies. The marketing of agricultural products was conducted by state-owned enterprises which provided inputs and technology to producers. Producers were organized into cooperatives (fermes d'etat) to facilitate the distribution of inputs, technology, and credit and, in particular, to promote the development of non-traditional products, including horticultural crops.

By the early 1980s it was clear that these policies were ineffective, as the prices received by farmers were highly distorted because they reflected the government's effort to control inflation. This situation promoted the operation of parallel black markets. In addition, cooperative arrangements failed because farmers were organized into groups simply to access credit rather than to adopt improved production technology. Most analysts recognize that Malagasy households place a larger value on family ties than to "impersonal" linkages promoted within the "fermes d'etat".[16] Nevertheless, the factors that affect the successful operation of well organized and trained groups are documented in this study.

The liberalization of food markets that began in 1985 immediately stimulated a change in the production and marketing strategies of rural households, and promoted the development of the agribusiness sector, including collectors, transporters, and processors of food crops. The first efforts of these agents involved attempts to extract large rents, which led to large intermediation margins, thus creating few incentives for expanding production and even depressing the demand for final goods. However, large profits also stimulated the efforts of other agents to integrate the collection, processing and marketing of additional goods into their operations to expand their business.

The linkages between agricultural producers and the rest of the economy are built upon the interventions of the above-mentioned agents in the country. The marketing of agricultural production in Madagascar takes place in three different forms: (1) spot market operations between agricultural agents (supplier of inputs, traders, and processors); (2) explicit or implicit contracts between producers and agricultural agents; and (3) vertical integration from production to final consumers.

There does not seem to be a specific pattern of organization associated with a particular crop. But as will be discussed in the following sections, the type of interaction that occurs between producers and market operators appears to be affected by the specificity of the assets required for production, the degree of uncertainty surrounding the exchange relationship, access to finance, and the availability of information available to both producers and other agents. The technology of agricultural production and the nature of the final market for the product seem to be less important in affecting these relationships.

B. Arrangements and Contracts in the Agricultural Sector

The crop, the level of organization among farmers, and their investment capacity seem to determine their ability to interact with other sector agents, as well as their degree of integration into the market. Subsistence farmers, who mainly produce rice, fruits and vegetables, have to rely on independent collectors and spot market transactions for the sale of their limited surplus production. Organized groups of farmers have access to processors and traders through formal contracts that usually involve the provision of inputs in return for a

---

[16] Pierre Verin provides useful insights on the idiosyncracy of Malagasy people.

specific amount of product, purchased at a price fixed at the time of the contract. Medium and large farmers, who produce traditional domestic and export crops, usually obtain formal contracts with processors and traders, which are frequently used as a guarantee to access credit from the formal financial system.

a. The spot market for agricultural products

Spot market transactions characterize the relationship of independent transporters and marketing agents with subsistence producers who use rudimentary techniques (limited use of fertilizers, improved seeds, or equipment), generate limited volumes of saleable surplus, are unable to cover the high costs of transportation caused by a deficient road infrastructure, and lack information about the prices paid by consumers for the commodity. A significant intermediation margin characterizes this type of relationship. This situation reflects more the substantial profits earned by independent agents than the choice of marketing arrangement. Significant differences occur within a specific production region, as found in the highlands in the sales made in local markets by subsistence farmers of their surplus production of rice, vegetables and fruits. For example, in 1993 the price paid for one kg. of rice to a producer located in the neighborhood of Fianarantsoa was about 550 FMG[17], whereas a producer located at only 80 Km from the city received only 400 FMG per kg. at a time when rice was selling in the market place for about 800 FMG per kg.[18] In this case, the lack of transportation alternatives and the failure of producers to organize left them at the mercy of the traders.

Differences can also be found for products that are marketed in different regions where market access is difficult because of the poor conditions of regional and secondary roads. For example, one kg. of tomatoes sold in 1993 for about 1200 to 1500 FMG in the southeast, while Fianarantsoa producers received only about 350 to 400 FMG. Since transportation costs have been estimated to be no higher than 100 FMG per kg., this left traders with a sufficiently large intermediation margin to cover losses of this perishable product resulting from the long trip on poor roads, and to cover unanticipated price variations between the time of purchase and the time of delivery in the market.

Coffee producers are also said to have received about 800 FMG per kg. of a product that sells for about 1400 FMG to processors and local vendors. The high margin is not only a result of the constraints faced by subsistence farmers, but also due to the weak infrastructure and lack of information among producers about prices paid for products in other regions.

Fortunately, the situations described above are likely to change in the near future because agribusinesses and other agents have been effective in reducing margins and promoting the diversification and modernization of agricultural production. However, the different types of

---

[17] One U.S. dollar was equivalent to about 1900 Malagasy Franc (FMG) in March, 1994.

[18] Information on prices in Fianarantsoa provided by AFAFI.

contracts observed among producers and these agents do not always emerge because of the same reason. For example, AFAFI, a supplier of agricultural and veterinary inputs, was forced to depend upon local importers which were not always willing to meet their demand and also applied a significant surcharge on the product price. The company recently decided to engage in collecting, transporting and marketing vegetables between Fianarantsoa and the southeast. By engaging in the marketing of vegetables, the company aims to benefit not so much from the additional income generated by these sales, but from the increased demand for seeds and fertilizers required by small producers willing to diversify production if product markets implicitly guarantee an attractive price. The increase in sales will also allow the company to directly import fertilizers so it can guarantee the availability of its products and reduce the cost to its clients by eliminating the surcharged applied by the local importer.

Another example of an important margin-reducing intervention in the form of a spot market operation is the case of TIKO, a local processor of dairy products. The company is attempting to exploit scope economies that would result from the better use of its installed capacity by diversifying production into natural fruit juices. Tiko decided to vertically integrate the collection of oranges to guarantee supplies of the fruit. In order to do so, the company visited traditional orange producing sites (the fruit grows wild in the countryside), identified producers, and gathered information about the prices paid by independent collectors for oranges sold in the local markets. It informed orange producers of its willingness to purchase oranges, no smaller than 6.5 cm in diameter, on a regular basis at specific sites paying a price high enough to cover the additional transportation cost to the site and generate a surplus for orange producers. As a result of this arrangement, the price received by orange sharecroppers rose from 15-20 FMG per kg. at the farm, to 75-100 FMG per kg. at the specific collection site, a differential that not only covered the cost of transportation (shared and arranged by producers), but also increased the income generated by the sales of the product during the harvest season. The seasons usually last for three months, but TIKO works in regions with different production cycles to assure the supply of the product for about nine months.

b. Formal production contracts

The privatization of parastatals engaged in marketing traditional products has also led to the development of formal production contracts that guarantee the supply of a specific volume and quality of a product. These arrangements are commonly found between processors, traders, and medium and large producers of traditional crops (mainly rice and beans). The contract involves the supply of seeds, fertilizer, and other inputs by processors and traders, in exchange for a guaranteed equivalent of production at a specific price.

For instance, the Madrigal company, a member of the MARBOUR group provides 120 kg. of improved seed in exchange for 1.5 ton/ha. production at 450 FMG per kg. of rice. The contract also opens up the possibility of purchasing excess production at the on- going market

price.[19] While in this case the price received by these producers is similar to the one received by subsistence producers, they are more than compensated by the higher productivity that is generated with improved seeds and fertilizers. In addition, since the formal contract can be associated with an assured market for the product, the BTM accepts it as a guarantee for short-term finance to medium and large producers.

A formal contract has been established by SEAD, a diversified producer/processor/exporter of agricultural products, and small producers of peanuts and corn. The company supplies producers with improved seeds and inputs, in what it calls "credit de confiance", the amount of which is deducted at the time of harvest. The existence of the contract allows small peanut producers to access a limited amount of credit from the BTM. BTM is willing to work with small farmers because they produce non-perishable crops that have a guaranteed market.

Formal contracts that assure the purchase of production have also been used to facilitate the transfer of technology and the diversification of agricultural production. This is the case of the promotion of wheat production in the Highlands. KOBAMA, a local processor of wheat, has supplied seed, fertilizers, and technical assistance to Fianarantsoa producers for wheat production, an off-season crop that does not compete with their traditional rice production. This arrangement was initiated in response to a requirement established by the Caisse Central of France which was financing the construction of a second wheat-processing, flour-producing plant. Emphasis was given to the production of wheat by small farmers as the suitability of the land had been proven by other European researchers.

The wheat program proceeded in three phases. Research and experimentation were conducted between 1983 and 1985. Then a phase of dissemination of production technology was conducted with KOBAMA undertaking the transfer of technology, the supply of inputs, and the collection of production. In addition, KOBAMA used credit from commercial banks to indirectly finance small farmers, accepting as payment a specific amount of wheat. During the second phase the company proceeded to requalify groups as it was evident that some of them were not performing adequately. When viable producers were identified, the company proceeded with a third phase during which it transferred the supply of inputs, technical assistance and the collection of production to other agents. Farmer groups have organized themselves for the purchase and distribution of inputs from local suppliers, and have undertaken the collection and transport of products to the processing plant. This effort has been a successful foreign-exchange-saving innovation, because of the total 85,000 tons of wheat processed annually by KOBAMA, 10,000 tons are being currently supplied by local producers. The goal is to reach 15,000 tons of domestically produced wheat by 1995.

---

[19] The market price observed at the time of harvest is higher than the one stated for the repayment of inputs. This mechanism involves an implicit interest rate charge on the cost of the advances of inputs made by processors and traders.

c. Vertical integration: Developing non-traditional/export-oriented activities

The specificity of technology, the duration of the production cycle, and the significant investment and research required to start production of high-quality, non-traditional exportable goods has lead exporters to vertically integrate the production and marketing of commodities. There is, however, no specific size of exploitation required for the arrangements established within this approach, as will be shown by the following examples.

The production, processing and exports of gherkins and french beans conducted by LECOFRUIT is based upon small farmer production in what could be called a quasi-integration and resource providing arrangement. The company chose small farmers in the highlands, who traditionally produce cassava and a local tuber called "taro," because high quality required exports can only be assured by operations no larger than 10mx10m. Formal contracts are established for the purchase of the output at a specific price in exchange for the transfer of technology, seeds, fertilizers, insecticides and pesticides. The company operates at all levels. It has a team of 120 employees charged with the training of over 4,000 farmers in the production of biological fertilizers (compost), the planting of seeds, and the collection of production. It also makes advances to store owners in local villages to select, purchase and keep records on the production of individual farmers. Trucks collect the produce weekly and deliver it to the processing plant where it is prepared for export. The price received by farmers is set according to the price received by LECOFRUIT for the processed product, which is established in advance in contracts made with foreign importers. Not only has the company had to investment its own resources in processing equipment and market development, but in addition it has had to improve village roads to reduce the maintenance costs for its trucks. Limits on the potential for expansion include the poor state of infrastructure and the lack of cold-storage facilities at the airport. The inputs supplied to farmers are purchased from local importers and distributors because the volume used by the producers of gherkins does not meet the minimum to cover the cost of directly importing these products. The company is not willing at this stage to perform a storage function. This agribusiness-led intervention has raised the revenues of small farmers by increasing their marketable output, promoted the diversification of their production into an off-season crop that stabilized their incomes, and increased the yield of their traditional production because of the use of fertilizers. In addition, local store owners started to give consumption credit to agricultural producers who reimbursed them at the time of purchase of the products.

MR. BLUE is another company exporting non-traditional products, mainly letchies, spices, and processed fruits and vegetables. This company has also opted for a quasi-integrated input providing arrangement with farmers. In order to assure the availability of the products, MR. BLUE works with four producer associations, to which it advances inputs, seeds and fertilizers. The amount of the advance is deducted from the value of the purchases made from each group at the time of harvest. However, the company can not provide technical assistance, nor finance the costs for the producer associations to invest in capital and technological transfer to improve the quality of their products. In spite of having firm contracts with importers in France, it has been hard for the company to obtain credit from formal commercial banks. The

production of perishable products is not supported by any banking institution in the country. Problems with the quality of products produced by the associations and the lack of finance are the most important constraints on the expansion of MR. BLUE's operations. The company and the producer associations have presented a proposal to USAID/Madagascar to determine if funds from the MAELSP project can be donated to finance technology transfer, research and training of farmers.

Full vertical integration has been adopted by agribusinesses when large scale production is needed to assure a high-quality exportable product. For example, apples are grown by small, medium and large producers in the highlands surrounding Antsirabe, the country's most industrialized city. Traditionally, independent producers get together at harvest time and hire trucks to transport their production to local and regional markets. Although the potential to grow apples for export exists in the country, the quality produced under current methods is not suitable to meet the high standards of international markets. The significant investments and risks involved in the adoption of new production methods can only be undertaken by large scale producers. Not surprisingly, AGRICO, an importer and distributor of agricultural inputs has rented a state-owned farm to explore the profitability of large-scale highly-controlled production of apples for export. Since the harvest season lasts for only three months, the company is also in the process of building a cold-storage chamber on site in order to lengthen the life of the product and to make it available year round. In its large scale operation, the company can rely on a few qualified workers to apply fertilizers and to renovate and maintain trees; it hires temporary workers only at the time of harvest. The attempts at exports have failed, however, because of the claims made by foreign importers that the quality and price of Malagasy products are not competitive in the markets explored.[20] The company is looking into measures to improve quality and is exploring new markets. Currently all production is sold in the local market for which the company has a 10 percent share.

Another example of full vertical integration is the production of exportable flowers by SEAD. SEAD directly produces flowers for export to guarantee that the quality will meet the high standards set in international markets. The project was developed in coordination with importers/distributors in the Netherlands and received funds from an international development bank in the Netherlands to finance the developmental stages of flower production. SEAD has firm annual contracts for the purchase of its products.

d. Asset specificity, uncertainty and the choice of marketing arrangements

The asset specificity of production technology, the uncertainties about the market for the product, perishability, access to information and finance, and the existence of other competitors are factors that seem to determine production activities and the choice of marketing arrangements undertaken by agricultural sector agents. For instance, AGRICO, a large wholesale and retail supplier of agricultural inputs, is expanding into the processing, marketing, and exporting of

---

[20] South Africa is the strongest competitor faced by Madagascar in these markets.

non-traditional products to diversify its business. Although the company chose to vertically integrate the production of apples to improve product quality, the purchase of ginger for export is conducted through spot market operations with known village collectors, usually local-store owners who have transport and storage capacity for a non-perishable commodity.

In contrast, AFAFI, a small supplier of inputs to small farmers, views the marketing of vegetables, a highly perishable commodity, as the only way to create incentives to expand production and to increase the sales of its traditional product line. The current level of fertilizer sales is approximately 500 tons per year, a volume significantly below the minimum 2,000 tons required to directly import the product. As a result, the company purchases fertilizer from a large importer located in Antananarivo, but this increases the cost of fertilizer to AFAFI and its clientele.

KOBAMA, the largest processor of wheat in the country, chose the use of formal contracts and the integration of technology transfer, supply of inputs and collection in order to promote a non-traditional product. This integration is being phased out, however, as the services being provided by KOBAMA can be undertaken by other operators or integrated into producer associations. Eventually, wheat purchases will be conducted through spot market operations at processing plants in the same way the company currently purchases corn. The transfer of technology was the major reason leading to the integration of support activities in the developmental stages of wheat production, but this integration will not be necessary for a product that is non-perishable and whose quality need not be carefully screened.

The transfer of technology was also a key factor that led LECOFRUIT to opt for a highly integrated organization based upon the operation of small farmers. However, since the product is highly perishable and its quality has to be carefully controlled, it is unlikely that the company will phase out the functions of technical assistance, collection, and processing it has integrated into its operation. The high investments required for the development of products exported by LECOFRUIT could not be financed by commercial banks because they perceive the production of non-traditional products for export as a risky business. Fortunately, the fact that LECOFRUIT belongs to the BARDAY Group, a set of companies that has diversified industrialized activities (food, textile, and leather), made it possible for the group to undertake the risks and to cross-subsidize the developmental stages of LECOFRUIT's activities.

The Societe Malagasy de Producteurs de Lait (SMPL) used to provide inputs and technical assistance to dairy farmers to assure the supply of milk without an explicit purchase contract. However, the company claimed that one of its competitors, TIKO, entered the market in the early 1980s and proceeded to capture the traditional suppliers of SMPL by offering a higher price for fresh milk without providing any service. The present purchases of fresh milk are made through spot market operations involving the collection of milk by trucks from companies. However, neither SMPL nor TIKO provide inputs or technical assistance to farmers.

e. Factors affecting marketing arrangements

In trying to assess the factors that determine the marketing arrangements between producers and other agents, it is important to consider the whole production cycle: Traditional production -- Supply of inputs -- High yield production -- Collection -- Processing --- Local distribution (wholesale/retail) ---- Exportation. The factors that shape the relationship can be identified as follow:

- Full vertical integration appears more likely when the product is characterized by a long-term cycle, is highly perishable, self-financed investments are required in the transfer and adaptation of technology and in the improvement of infrastructure, and high quality is required for exports (AGRICO, large scale production for exports).

- Quasi-vertical integration using contracts with small farmers are common when the transfer of technology, the supply of inputs, and collection, processing and distribution are required to meet high quality standards for a short-cycle, highly-perishability product (LECOFRUIT, Mr. BLUE, fruits and vegetables for exports).

- Formal contracts with organized groups of farmers seem to be used when the supply of inputs, collection, and marketing are required for highly perishable products sold in the local market (AFIFA, fruits and vegetables).

- Formal contracts that involve the temporary transfer of technology, supply of inputs, and collection at specific sites are used by organized groups of farmers and collectors/processors/traders of non-traditional, non-perishable products that are sold in the local market. (KOBAMA, wheat production).

- Formal contracts that involve the supply of inputs and the collection at specific sites are used by traders/distributors and producers of a highly perishable commodity.

- Formal contracts that involve the supply of inputs and delivery at the plant are found between processors/distributors and producers of non-perishable products when the quantity and quality required are important (MADRIGAL, traditional consumption and export crops).

- Spot market purchases are used between processors/distributors and large collectors if processing is required for a highly available, nonperishable commodity (AGRICO, ginger for exports, basic grains for local markets).

- Spot market operations are used between independent collectors and producers of highly-perishable, highly available goods that are sold at local markets with restrictions on quality (rice, fruits and perishable vegetables of subsistence producers).

A typology of marketing arrangements and type of finance received is presented in Table 8. As can be observed, because of the high perishability of non-traditional exports, especially fruits, vegetables and flowers, even with assured markets for the product these activities require a significant level of integration because of the specificity of technology and inputs required. They have to rely on self-finance, cross subsidization or foreign funds to undertake the risks associated with the developmental stages. The risks are associated mainly with the high perishability of the products, and with the possibility that the output obtained may not meet the quality standards required in foreign markets.

In addition, even when these activities become profitable, agribusinesses find it difficult to finance them through private commercial banks which are conservative and finance only large and traditional producers. The BTM is unlikely to provide this type of finance when companies intend to finance organized groups of small farmers.

Table 8. Madagascar: Asset Specificity, Uncertainty and Marketing Arrangements in the Agricultural Sector

UNCERTAINTY		ASSET SPECIFICTY					
		HIGH		MEDIUM		LOW	
		Technology transfer High Quality		Supply of Inputs High Quality		Traditional technology Average Quality	
		Long Cycle	Short Cycle	Long Cycle	Short Cycle	Long Cycle	Short Cycle
HIGH Perishable Non-assured market	Large Scale	Full Vertical Integration AGRICO (Apples) Self-finance	Full Vertical Integration SEAD (Flowers) Self-financed				
	Small Scale		Quasi-integration LECOFRUIT (Gherkins) Self-financed	Quasi-integration MR. BLUE (Fruits) Self-financed	Quasi-integration MR. BLUE (Vegetables) Self-financed	Spot Market Collectors (Fruits) Non-financed	Spot Market Collectors (Vegetables) Non-financed
MEDIUM Perishable Assured market	Large Scale			MARBOUR (Rice, Beans) Formal Contract Formal Finance			
	Small Scale		Formal Contract AFAFI (Vegetables) Self-financed				Spot Market TYKO (Milk) SMPL (Milk) Non-financed
LOW Non-perishable Assured market	Large Scale	Vertical Integration (Cotton) Formal Finance		Formal contract with large producers Processors/exporters (Coffee)			
	Small Scale		Temporary Quasi-integration KOBAMA (wheat) Indirect finance		Formal Contract SEAD (peanuts, corn) Limited Formal Finance	Spot Market TYKO (Oranges) Non-financed collectors Non-financed	Implicit contract with large collectors AGRICO (Ginger) Non-financed

VI. Sources of Finance

A. Terms and Conditions of Formal Finance

The only source of formal credit for agricultural production is the BTM. However, the institution reports a coverage of less than 4 percent of total farmers, its target clientele. The importation and supply of inputs, and the marketing, processing and distribution of outputs is financed by the commercial division of the BTM, and by the BNI and the BFV. The interest rates charged on short-term production loans range between 13.5 and 14.5 percent per year for agriculture, and between 17-19 percent for medium- and long-term production loans at the BTM. Other commercial banks charge from 20 to 24 per year for agricultural-related loans. Medium- and long-term capital investments are financed at rates from 20 to 22 percent at the BTM, and at rates of 17 to 19 percent at other commercial banks.

The structure of interest rates at the BTM reflects the cross-subsidization of agriculture from other commercial activities of the bank, justified as part of its developmental function in the country. The high interest rates charged by other commercial banks reflect attempts to generate profits from the highly profitable internal trade and commercial activities. The specific interest rate charged by commercial banks for short- and medium-term loans are more a function of the existing relationship between the bank and its clients than a function of the amount and type of activity being financed. All banks indicated that they rarely receive a well developed proposal for the financing of new or non-traditional products and investments. The BTM claims to assist borrowers to prepare their proposals when profitable activities are identified.

B. Assessing Financial Needs of Producers and Agricultural Operators

Is agricultural finance a constraint in Madagascar? When asked about their financial needs, the medium and large size farmers and other agents complain more about the cost of formal finance rather than about the lack of access. Well organized cooperatives and groups of farmers complain not about the cost of finance, but about the 30 percent equity participation required to promote expansion and investment activities. Small, independent, dispersed farmers are currently precluded from the formal financial system, so they rely on their relative's savings (as family ties are strong among Malagasy households), or upon the sales of assets in order to meet their liquidity needs. Although informal lenders are known to exist, their role appears to be limited in the agricultural sector. Traders have reportedly gone bankrupt by financing small producers.

The certainty about a market for the farmer's output and the existence of formal contracts play a dominant role in shaping financial arrangements in Madagascar. In the production of traditional non-perishable goods, well established individual farmers and marketing/processing firms have fewer problems accessing credit from the financial system than well organized groups of farmers. However, the production of and investment in non-traditional highly perishable activities appears to be difficult to finance by the banking system. Non-traditional exporters

claim they have to self-finance the developmental stages of their activities and are charged the highest rates of interest once access to formal finance is obtained.

Processors and traders usually get involved in the provision of inputs such as seeds, fertilizers, etc., as advances in kind to guarantee the supply of a specific volume of traditional, non-perishable products. To do so, contracts are established at the beginning of each production year to fix the amount of output to be delivered and the price of purchase.[21] Once contracts have been established, the size of the farm and the activity produced also determine the amount and type of credit received. For traditional crops and for medium and large size farmers, the existence of a contract with a processor/trader facilitates access to short-term production credit from the BTM.

Formal contracts are also important in determining the access of organized groups of farmers and cooperatives to the short-term credit granted by the BTM. However, there are two important differences with respect to the credit received by medium and large producers: (1) the credit only covers the value of key inputs, and (2) the credit is channelled through the collector/processor so producers normally do not receive cash. The repayment for the inputs provided and the equivalent of the on-going lending rate is set as a fixed amount of output which is calculated as a function of a fixed price. In addition, the collector may be willing to purchase the farmers' entire production at the on-going market price. The screening of clients and the evaluation of their credit risk is placed solely upon the processor/trader, who has to sign for the loan and is required to reimburse the BTM for the value of inputs and interest once the collection of the products has been completed.

Formal contracts for the purchase of production are also established between farmers and processors/exporters of non-traditional products but these activities are rarely financed by the banking system. In this case, the purchaser of the product actually uses his own resources to advance inputs to farmers, and an implicit interest rate is charged in establishing the volume of output that the farmer must deliver in kind and in setting the purchase price for the output. By having to commit own resources, the purchaser is limited in terms of expansion. By financing inputs, it absorbs some of the production risk of the activity. These factors act as a barrier to the development of non-traditional activities.

The response of traders, processors and distributors of agricultural production to the credit constraint question is different. All complain about the high cost of finance, but large and medium size agents that work with traditional products do not report problems in accessing formal finance. They report that they even shop around to obtain the lowest interest rate. However, the promoters of non-traditional and/or highly perishable products are said to have a more difficult time obtaining credit and are charged the highest interest rates. Well established suppliers of inputs also access credit from commercial banks. The only problem reported is the

---

[21] The prices of key inputs and agricultural products are still set by Government decrees at the beginning of each production year.

limits on imports that derive either because of the shortage of foreign exchange in the country, or because of the high prices paid for inputs purchased from a local distributor because the volume of sales is insufficient to directly import from abroad.

Agribusinesses usually rely on independent collectors to guarantee the availability of products. They frequently have access to formal finance if they process, market, and export traditional, non-perishable crops. Firm purchase orders from importers abroad is usually accepted as a guarantee to access credit. In addition, some of them have access to foreign finance as they are integrated or quasi-integrated with large importers/distributors abroad. However, when the line of business involves non-traditional or highly perishable products, agribusinesses have to set up a network of extension agents and collectors to guarantee the quality and availability of the product, and have to rely on self-finance to conduct their operations.

VII. Issues, Constraints and Recommendations

A. The Economic Environment and the Role of Agribusinesses

Because of the significant level of poverty observed in recent years in the country, most Malagasies are thought to be incapable of financing the expansion/diversification of productive activities. The limited development and coverage of the financial system, tied to macroeconomic constraints that restrict the expansion of the banking system's credit portfolio, and limitations in public sector investments prevent the integration of farmers into the market system and the full realization of the growth potential of Madagascar.

The financial market recommendations of The Ohio State University and other financial analysts have been recognized and are being incorporated into the country's financial policies. Rather than attempting to promote agricultural production among small farmers with widespread credit programs that are almost doomed from the start, the most recent efforts are conducted towards organizing producers and creating incentives for the monetization of rural savings. Savings and Loans Cooperatives[22] are being promoted by the BTM, international donors (UNDP, GTZ), and NGO's. They are seen by these organizations as the only way to mobilize savings which could eventually serve as seed capital for productive projects.

These efforts, however, are expected to yield results only in the medium and long run. Not surprisingly, any arrangement that assures a market for products appears to be the most effective way found by agribusinesses and other agents to increase agricultural production. In addition, the integration of different support activities and other interventions, mainly self-financed, appears to be the model most suitable to promote agricultural sector development and exploit investment opportunities in the country.

---

[22] Known in the country as "Mutuelles de Epargne et de Credit".

This strategy is compatible with the development of producer associations to organize production.[23] In fact, the existing associations have already identified the needs of agricultural producers in order to better channel assistance to build linkages with agribusinesses and other agents, to promote their integration into the market, to serve as a conduit to transfer technology, and to promote modernization and diversification of agricultural practices.

The potential for improving the agricultural sector is found in both the possibilities that the large margins between producers and consumer prices in internal markets offer for innovative interactions between agents, and by the opportunities offered for the export of non-traditional agricultural products. However, there remain some constraints that still limit the exploitation of these opportunities, most of which are being dealt with through the assistance of international donors.

The interventions that result from the existing large margins have several advantages as they build internal linkages in the economy. By improving prices to producers, incentives are generated to stimulate production, to increase surpluses and revenues, and to improve food security in the country. On the consumers' side, the reduction in prices expands demand, diversifies dietary intakes, and helps integrate producers with markets. The increased monetization that results from the integration and expansion of the market facilitates the design and transmission of economic policy. There are, however, several constraints that still prevent the development of agricultural production in Madagascar.

a. Producer level constraints

Since the Malagasies have traditionally been identified as individualistic, relying only on relatives to share the organization, risks, and revenues of productive activities, previous efforts to develop producer associations have had little success. Financial intermediaries agree that farmers form groups simply to gain access to credit rather than to change or modify their businesses and techniques of production. As a result many efforts have focused on the need to develop an improved awareness and more productive orientation among group members before attempting to support their productive activities. The constraints at this level are:

1) The lack of a market for agricultural production appears to be the most important factor constraining the expansion of production among well organized groups.
2) The 30 percent equity participation requirement imposed by formal lenders appears to limit the ability of organized groups to undertake capital investments.
3) Technological innovation and the diversification of production proceed slowly, because it is difficult to convince Malagasy farmers to abandon their ancestor's system of production in favor of modern techniques.

---

[23] A model implemented during the 1970s by the socialist government has recently been redesigned to facilitate technology transfer and promote financial savings mobilization.

Many donors and non-governmental organizations are assisting groups to undertake capital investments.[24] It is perhaps the lack of a culture to generate savings prior to investment that restricts such investment. The efforts conducted in the country to promote savings through a "mutual-like system" appear to be the only way to enable organized groups of farmers to generate the 30 percent equity participation needed to access credit from formal lenders for investment and expansions. Only when their own resources are at risk will producers carefully evaluate production alternatives. This approach could also promote the monetization of savings known to exist in the form of real assets and livestock.

b. Infrastructure

Several constraints also exist due to the absence or weakness of infrastructure in the country:

1) The weak road system raises transportation costs, and reduces the share of production from small and dispersed farmers that enters the market.
2) The lack of storage capacity among small farmers limits their ability to increase production and to negotiate with independent collectors about prices offered for their production.
3) The lack of infrastructure also limits potential collectors and traders to undertake the transportation, processing, and marketing of products.

Innovative entrepreneurs have reportedly used their own funds for improving village roads to increase access to production. International organizations are also providing resources to undertake this task, but it remains as a long-run effort. In addition, organized groups of farmers are conducting efforts to build and administer communal storage facilities (Grainier Comun Villageois) which will improve their ability to negotiate with independent collectors, while processors are integrating the collection of production to assure the supply and reduce the costs of the products.

c. Input supply

Large importers and wholesale distributors of inputs for agricultural products did not report the lack of foreign exchange as a constraint. Nor did they mention problems in accessing credit. The small regional subdistributors mentioned the following constraints:

1) Their demands are not met in periods of foreign exchange shortages, as large wholesale distributors meet first the needs of large, traditional sector demands.
2) Their inability to achieve a minimum volume of sales directly limits their ability to overcome the foreign exchange constraint and increases the cost of inputs for final users.

---

[24] The FAO Integrated Development Project in Marianarivo provides a good example of such efforts.

3) The need to advance inputs to farmers and their lack of access to credit forces them to tie up a substantial amount of their resources that could be used in other aspects of their operations.

Most interventions by small distributors are aimed at increasing the volume of sales to augment their import capacity. In addition, international donors are attempting to increase the availability of foreign exchange in order to ease that constraint on the importation of key agricultural inputs.

d. Export-oriented activities

In spite of the deterioration in traditional export markets, the diversity of agricultural production and access to the European Economic Community granted by the ex-colonial status of the country[25] offer great possibilities for the expansion and diversification of exports. Unfortunately, the only incentive that export-oriented agribusinesses receive is the Free Zone Status, which allows them to retain foreign exchange to satisfy import needs if all production is destined to foreign markets. Given the need to control fiscal imbalances, there are no government support programs to address the following existing needs:

1) The significant technology transfers that are required to meet quality standards set in international markets.
2) The substantial investment in infrastructure needed to meet the fitosanitary requirements of processed commodities.
3) The research and adaptation of varieties and identification of potential areas of production.
4) The need to upgrade port and airport infrastructure to accommodate perishable goods (there are no cold storage facilities in place).
5) The improvement of road infrastructure to access potential producers.
6) The need for improved marketing of products abroad.
7) The limits on air cargo capacity and the comparably high costs due to the monopoly position held by the domestic air carrier Air Madagascar, an affiliate of the Air France Group.
8) The unwillingness of commercial banks to finance the development stages of the production and management of non-traditional, highly perishable commodities.[26]

---

[25] The quantitative restriction on banana imports is the only binding constraint affecting Madagascar with respect to this group of countries.

[26] As indicated above, the high degree of specialization and limited size of the banking system allows banks to maintain a oligopolistic position, choosing only highly profitable investments, and conducting little savings mobilization.

Consequently, most export-oriented agribusinesses directly invest in actions to remove or reduce these constraints. Some firms, such as AGRICO, have started to build their own cold-storage facility. Other firms, like LECOFRUIT, directly invest in the maintenance of rural roads; and others, like SEAD, complement their limited resources with foreign funds to finance research and technology transfer. International donors are also playing a key role by orienting their interventions towards the removal of such constraints.

e. The banking system and project proposals

The most important restrictions that appear to derive from the current operations of the banking system are related to:

1) Restrictive monetary policies that limit the total volume of credit granted.
2) The lack of geographic coverage of the system that prevents it from providing services in rural areas.
3) The banking system appears unwilling or unable to evaluate, manage and undertake new risks and maintain its traditional, highly specialized credit activities.
4) The inability of credit-worthy entrepreneurs to prepare acceptable project proposals.

Efforts are also being considered to assist agribusinesses in the evaluation of projects and in the preparation of credit proposals. Training may be needed to improve the banking system's ability to evaluate and administer the risk of lending in non-traditional programs. Credit components in any assistance program should be directed towards businesses and other agents with proven market success to expand their operations at competitive interest rates. These agents are easier to monitor than dispersed farmers, and have significant multiplier effects through the services provided to agricultural producers.

REFERENCES

Alternatives, "Les Associations de Producteurs," Report to the MAELSP USAID/Madagascar project, 1991.

ARTS/FARA, "Agribusiness Development in Sub-Saharan Africa: Suggested Approaches, Information Needs, and Analytical Agenda," USAID/ Washington, Volumes I and II, 1992.

Asian Development Bank, "Export Finance: Some Asian Examples," Manila, 1990.

INSCAE, "Export Trade of Non-Traditional Products," Report to the MAELSP/USAID project in Madagascar, Antananarivo, 1992.

Jaffee, Steven and Gordon, Peter, "Exporting High-Value Food Commodities: Success Stories from Developing Countries," World Bank Discussion Papers, World Bank, Washington D.C., 1988.

Martin, Frank, "Whither Madagascar?," USAID/Madagascar, Antananarivo, 1992.

Ministere d'Etat charge de l'Agriculture et du Developpement Rural,"Annuaire des Statistiques Agricoles," Antananativo, 1991.

Ministere d'Etat charge de l'Agriculture et du Developpement Rural, "Enquete Permanente sur les Exploitations Agricoles," Antananarivo, 1991.

O.S.I.P.D, "Study of the Feasibility of the Development of the Credit System in Supply, Collection, Commercialization and Exportation," A report to the USAID/Madagascar and the World Bank, Antananarivo, 1991.

RAMAHOLIMIHASO and MANAMIHASO, "Etude sur les Groupements Professionnels & Interprofessionnels d'Operateurs Agricoles," Report to MAELSP USAID/Madagascar project, Antananarivo, 1991.

USAID/Madagascar, "Madagascar, Commercial Agricultural Production, Project Identification Document," Antananarivo, 1992.

USAID/Madagascar, "Madagascar, Country Program Strategic Plan FY 1993-1998," Antananarivo, 1992.

Verin, Pierre, "Socio-Economic Factors in Economic Development in Madagascar," Report for USAID/Madagascar, Antananarivo, 1992.

World Bank, "Madagascar, Financial Policies for Diversified Growth: Choices for a Market Economy," Report No. 9817-MAG, World Bank, Washington, D.C., 1992.

World Bank, Trends in Developing Economies 1992, World Bank, Washington, D.C., 1992.

World Bank, World Tables, World Bank, Washington, D.C., several years.

Zeller, Manfred, "Rural Finance and Food Security in Madagascar," Unpublished Paper, International Food Policy Research Institute, Washington, 1993.

INTERVIEWS CONDUCTED

Exporters

Barday, Karim, General Director, LECOFRUIT.

Rakotoniarainy, Zaka, General Director, SEAD.

Randriambeloma, Simone, Manager, Mister Blue.

Rasolofoson, Solo, Director, Services and Products, Exports Agrico.

Processors

Pirbay, Mohamed Raza, Societe Malgache de Transformation de Caoutchouc, SMTC.

Rakotonirina, Japhet, Director, MARBOUR. Groupe Marcelin Bourdillon.

Ramaroson, Ignace Roamin, General Director, KOBAMA.

Razafimahefa, Heriniana, Director, TIKO.

Bankers

Chuk-Hen Shun, Jean Jacques, Director, Rural Development, BTM, Anatananarivo.

Rapanoel, Theodore, Director General Adjoint, BNI-Credit Lyonnais, Antananarivo.

Rakotondrafara, Georges, Director, BNI-Credit Lyonnais, Fianarantsoa.

Ravelojaona, Aime, Director, BNI-Credit Lyonnais, Antananarivo.

Randriamampianina, Rolland, Branch Director, BTM, Miarinarivo.

Groups

Focus Group, Antananarivo, Producers, Producer Associations, NGOs Commercializers, Processors, and Traders.

Focus Group, Finanarantsoa, Producers, Producer Associations, NGOs Commercializers, Processors, and Traders.

Suppliers of Inputs

Rasolofoson, Solo, Director, Services and Products, Exports AGRICO.

Rakotoniaina, Michel, Director, AFAFI.